A Reconfigurable Satlin/Sigmoid/Gaussian/Triangular Basis Functions Computation Circuit

Muhammad Taher Abuelma'ati and Abdullah Shwehneh
King Fahd University of Petroleum and Minerals
Box 203 Dhahran 31261 Saudi Arabia
Email: mtaher@kfupm.edu.sa

***Abstract*—A CMOS Satlin/Sigmoid/Gaussian/Triangular Basis functions computation circuit suitable for analog neural networks is proposed. The circuit can be configured to realize any of the four functions. The circuit can approximate these functions with relative root-mean-square error less than 1%. It is shown that the center, width, and peak amplitude of the dc transfer characteristic can be independently controlled. HSPICE simulation results using 0.18um CMOS process model parameters of TSMC technology are included.**